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## **ELECTROPLATING COMPOSITIONS AND METHODS FOR ELECTROPLATING**

### **Abstract**

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Disclosed are electroplating compositions and methods for filling recessed microstructures of a microelectronic workpiece, such as a semiconductor wafer, with metallization. The electroplating compositions may comprise a mixture of copper and sulfuric acid wherein the ratio of copper concentration to sulfuric acid concentration is equal to from about 0.3 to about 0.8 g/L (grams per liter of solution). The disclosed electroplating compositions may also comprise a mixture of copper and sulfuric acid wherein the copper concentration is near its solubility limit when the sulfuric acid concentration is from about 65 to about 150 g/L. Such electroplating compositions may also include conventional additives, such as accelerators, suppressors, halides and/or levelers. Methods for electrochemically depositing conductive materials in features, such as trenches and/or contact holes formed on semiconductor workpieces are disclosed, including methods suited for use in multiple anode reactors using the disclosed electroplating solutions.

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